

REMARKS

This application pertains to a novel combination static mixer/heat exchanger.

Claims 1-21 are pending.

Claims 1-10, 12, 14-18 and 20 stand rejected under 35 U.S.C. 102(b) as anticipated by Streiff et al. (US Re. 36,969).

Applicants have now amended their claims to specifically recite that their mixer/heat exchanger comprises at least two (2) tubes which enter the product space but are closed to the product space and are adapted to receive heat transfer media within their interior. The limitation "closed to the product space" is clearly supported by e.g. figure 2a, where the tubes can be seen passing through the product space. The limitation "adapted to receive heat transfer media within their interior" is also supported by Fig. 2a wherein arrows illustrate heat transfer media entering the interior of the tubes, and is further supported by the language at page 22, lines 15 - 17, which describes one end of the tubes as being open into a heat transfer medium supply chamber.

The Examiner's attention is respectfully drawn to MPEP Section 2163 (I), the third paragraph of which provides that:

"An applicant shows possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, structures, *figures* (emphasis supplied), diagrams and formulas that fully set forth the claimed invention (citations omitted). Possession may be shown in a variety of ways including description of an actual reduction to practice, or by showing that the invention 'was ready for patenting' such as by the disclosure of *drawings* (emphasis supplied) or structural chemical formulas that show that the invention was complete...".

The Examiner's attention is also respectfully drawn to MPEP Section 2163 (I) (B), the second paragraph of which provides that:

"While there is no *in haec verba* requirement, newly added claim language must be supported in the specification through express, ***implicit, or inherent*** (emphasis supplied) disclosure.

The present application discloses a ***heat exchanger***. Those skilled in the art (i.e., chemical engineers) understand that a heat exchanger usually constitutes a "shell" through which either a product or a heat transfer media passes, and "tubes" which pass through the shell and carry the other of the product or the heat transfer media, and that the product and heat transfer media remain within their respective shell or tubes, and do not come into direct contact with each other. The heat transfer takes place by heat passing through the walls of the tubes from the heat transfer media to the product or from the product to the heat transfer media, but the heat transfer media and product remain physically isolated from each other. That is what a heat exchanger is and that is what a heat exchanger does.

As soon as any person skilled in the art hears the expression "heat exchanger" he or she will immediately think of the foregoing concept and would never think that the tubes could be anything but closed to the product space.

Thus support for Applicants' limitations are implicit and inherent in Applicants' description, as that description would be understood by those skilled in the art.

The Examiner's attention is respectfully further drawn to MPEP Section 2163 (II)(A)(3)(a), the third paragraph of which provides that:

"An applicant may show possession of an invention by disclosure of drawings or structural chemical formulas that are sufficiently detailed to show that applicant was in possession of the claimed invention as a whole (citations omitted). (**"drawings alone may provide a 'written description' of an invention as required by Sec. 112"**) ... (emphasis supplied)

The limitations "enter the product space but are closed to the product space and are adapted to receive heat transfer media within their interior" are therefore clearly fully-supported by the text, examples and drawings of the application.

Moreover, the present limitations do not raise any new issues, as essentially the identical issue presented by the added limitations were considered in the office action of 12/30/05. The present amendments therefore should not be refused entry.

Applicants respectfully request the Examiner to reconsider and not re-impose the 35 USC 112, first paragraph, rejection raised in that earlier office action, in view of the present remarks.

As previously pointed out, Streiff's tubes (20) pass into the housing and discharge directly into the housing. Streiff's tubes (20) therefore are not "closed to the product space", as is required by Applicants' claims. Moreover, there is nothing in Streiff that would suggest such a configuration, as Streiff's specific intent is to inject the contents of his tubes into the media in his flow channel. Applicants' claims are therefore completely contrary to the teachings of the Streiff reference, and cannot be seen as anticipated by or obvious over said reference.

Applicants note the Examiner's earlier comments (Office Action of 12/30/06, "Response to Arguments") that the specification, at page 12, lines 15-19, describes an embodiment wherein at least two radial openings form a connection from the passage of a tube to the product space, though which a component may be mixed with the product passing through the product space. This, however, is an additional feature that may be incorporated into Applicants' apparatus and is in addition to but does not eliminate the tubes recited in claim 1, which are closed to the product space. Accordingly, the possible inclusion of a tube having openings into the product space does not contradict the limitations recited in Applicants' main claim, as seemingly contended by the Examiner.

The rejection of claims 1-10, 12, 14-18 and 20 under 35 U.S.C. 102(b) as anticipated by Streiff et al. (US Re. 36,969) should now be withdrawn.

Claims 11 and 21 stand rejected under 35 U.S.C. 103(a) as obvious over Streiff in view of Mentzer (US 6,042,263). The Examiner turns to Mentzer for longitudinal ribs. No longitudinal rib could possibly overcome the differences pointed out above, and the rejection of claims 11 and 21 under 35 U.S.C. 103(a) as obvious over Streiff in view of Mentzer (US 6,042,263) should now be withdrawn.

Claim 13 stands rejected under 35 U.S.C. 103(a) as obvious over Streiff. The Examiner sees Streiff as referring to a "subsequent catalyst", and concludes from this that it would be obvious to have electric heating to ensure temperature is sufficient for catalysis. This is sheer speculation, at best! The Examiner has not pointed to anything in the reference that would even remotely have anything to do with electrical heating, or even show any need for any heating at all. There is absolutely no evidence presented to support the Examiner's conclusion, and this rejection is completely without any basis and totally unsupported by the reference. The rejection of claim 13 under 35 U.S.C. 103(a) as obvious over Streiff should be withdrawn.

Claim 19 stands rejected under 35 U.S.C. 103(a) as obvious over Streiff. The Examiner concludes that since the main flow through the housing is flue gas and the flow through the tubes is ammonia, there must be a substantial temperature difference between the two. This again is sheer speculation, as the Examiner has not shown any evidence to support his conclusion of a "substantial temperature difference". In addition, Applicants' claim 19 pertains to a method of controlling the temperature of a substance...by heating or cooling. The Examiner has not shown how, even if a temperature difference does exist, as he speculates, that this would control the temperature of the "substance". A temperature difference might have an effect on the temperature of the substance, but would not necessarily "control" it, especially in view of the fact that the ammonia is discharged directly into the flue gas. Is there a reaction? If so, is the reaction exothermic or endothermic? The temperature in Streiff would seem to be more likely uncontrolled than controlled.

In any case, even if somehow it could be shown that some type of temperature control does occur, this would not in any way overcome the differences shown above.

The rejection of claim 19 under 35 U.S.C. 103(a) as obvious over Streiff should accordingly be withdrawn

In view of the present amendments and remarks it is believed that claims 1-21 are now in condition for allowance. Reconsideration of said claims by the Examiner is respectfully requested and the allowance thereof is courteously solicited. Should the Examiner not deem the present amendment and remarks to place the instant claims in condition for allowance, it is respectfully requested that this Amendment Under Rule 116 be entered for the purpose of placing the prosecution record in better condition for appeal.

CONDITIONAL PETITION FOR EXTENSION OF TIME

If any extension of time for this response is required, Applicants request that this be considered a petition therefor. Please charge the required petition fee to Deposit Account No. 14-1263.

ADDITIONAL FEE

Please charge any insufficiency of fee or credit any excess to Deposit Account No. 14-1263.

Respectfully submitted,
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By 

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